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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,206

Applicant(s)

NG ET AL.

Examiner

JOSHUA SMITH

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

The amendment filed 04/15/2008 has been entered.

- **Claims 1-11 are pending.**
- **Claims 1-6 and 9-11 stand rejected.**
- **Claims 7 and 8 are objected to.**

Information Disclosure Statement

1. The information disclosure statement filed 04/14/2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. **Claim 10** states "a network element apparatus which is **equivalent** to a mobile node or a mobile router", and also states "a network element apparatus which is **equivalent** to the corresponding node or the home agent", and also states "the network element apparatus **equivalent** to the mobile router comprises a section...", and also states "a lower level network element apparatus **equivalent** to the mobile router" (emphasis added by examiner), however, "**equivalent**", or any form of equivalence, is not discussed for any device anywhere in the specification.

Claim 11 states "the network element apparatus **equivalent** to the mobile router", and also states "the network apparatus **equivalent** to the home agent", however, "**equivalent**", or any form of equivalence, is not discussed anywhere in the specification.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **Claim 10** states "a network element apparatus which is **equivalent** to a mobile node or a mobile router", and also states "a network element apparatus which is **equivalent** to the corresponding node or the home agent" (emphasis added by examiner). This is indefinite since it is unclear how an apparatus can be "equivalent" to a mobile router or a mobile node, and how an

apparatus can be "equivalent" to a corresponding node or the home agent. In addition, it is unclear in what way a "mobile node" and a "mobile router" are different that causes an apparatus to be equivalent to only either one or the other, and it is unclear in what way a "corresponding node" or "the home agent" are different that causes an apparatus to be equivalent to only either one or the other.

In addition, Claim 10 states "the network element apparatus **equivalent to the mobile router** comprises a section..." (emphasis added by examiner). This is indefinite since it is unclear if this is the same "network element apparatus which is equivalent to a mobile node or a mobile router" stated previously, and if it is, it is unclear why it is now equivalent to only a "mobile router" and not a "mobile node", it is unclear why it is now equivalent to "**the** mobile router", rather than "**a** mobile router".

In addition, Claim 10 states "**the network element apparatus** equivalent to **the mobile router** or a lower level network element apparatus equivalent to the mobile router" (emphasis added by examiner). This is indefinite since it is unclear if this is the same "network element apparatus which is equivalent to a mobile node or a mobile router" stated previously, and if it is, it is unclear how it is now equivalent to "**the** mobile router", rather than "**a** mobile router", and how it is now equivalent to "a lower level network element apparatus equivalent to the mobile router", and how it is no longer equivalent to "a mobile node".

In addition, Claim 10 states "a lower level network element apparatus **equivalent to the mobile router**" (emphasis added by examiner). This is indefinite since it is unclear

how a lower level network apparatus can be "equivalent" to a "mobile router", and how it is equivalent to **"the mobile router"** rather than **"a mobile router"**.

In addition, Claim 10 states "the mobile node which is connected to **the mobile router**" (emphasis added by examiner). This is indefinite since **"the mobile router"** suggests that a mobile router is stated previous to the excerpt, but a "mobile router" is not stated previous to the excerpt, and only "a network element apparatus which is equivalent to a mobile node or a mobile router" is stated previous to the excerpt, and there is no indication that these are the same device or how these are the same device.

In addition, Claim 10 states **"the mobile node"** which is connected to the mobile router ... **transmits a binding update message ... to the mobile node**". This is indefinite since it appears that a mobile node can transmit a binding update to itself.

In addition, Claim 10 states "constructs a routing header where an address of a corresponding higher level router is arranged at a head, ..., and forwards the packet to the temporarily assigned global address of the mobile router, which is the address at the head." This is indefinite since "an address of a corresponding higher level router" and "the temporarily assigned global address of the mobile router" both appear to exist at the head of a header at the same time, but there is no indication in Claim 10 that these addresses are the same address. Examiner will treat both of these addresses to be the same address and to be the temporarily assigned global address of the mobile router.

Claim 11 states "the network element apparatus equivalent to the mobile router transmits...". This is indefinite since it is unclear if this is the same "network element apparatus equivalent to a mobile node or a mobile router" as stated in Claim 10, and if it

is, it is unclear why it is now equivalent to only a "mobile router" and not to a "mobile node", and it is also unclear how it is equivalent to "**the** mobile router" rather than "**a** mobile router".

In addition, Claim 11 states "the network element apparatus equivalent to the home agent." This is indefinite since it is unclear if this is the same "network element apparatus equivalent to the corresponding node or the home agent" as stated in Claim 10, and if it is, it is unclear why it is now equivalent to only a "home agent" and not a "corresponding node", and it is also unclear how it is equivalent to "**the** home agent" rather than "**a** home agent".

Examiner will treat "equivalent" to indicate that an apparatus is similar to a certain device and can function as a certain device.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa et al. (Patent No.: US 7,136,365 B2) in view of Thubert (Pub. No.: US 2004/0057440 A1) and Venkitaraman et al. (Pub. No.: US 2003/0161287 A1), hereafter referred to as Nakatsugawa, Thubert, and Venkitaraman.

In regard to Claims 1 and 9, Nakatsugawa teaches in column 5, line 48 to column 6, line 3, and in FIG. 5 and FIG. 6, a mobile node (home address=A) normally connected to a home link network 1 (FIG. 5) moves to network 3 (FIG. 5), and then a mobile node moves to a network 4 (FIG. 5), and a mobile node generates an address C as a new CoA in a network 4, and a mobile node then transmits a binding update to a home agent router and a correspondent node CN2 as shown by "BU" in FIG. 5 to notify them of a CoA (=address C) (a network element apparatus to which a unique global address is assigned in a global network, and which is connected to a router, and which performs packet communication with a corresponding node via a home agent, an access section gains access to other network by using a temporarily assigned global address which is a different global address from a unique global address).

Nakatsugawa teaches in column 15, lines 7-14, and in FIG. 25, Sheet 20 of 34, a IPv6 header with a home address option, a CoA (Care of Address) option, and a destination address, where, in column 15, lines 40-52, a mobile node adapted router judges that the destination address of the IPv6 header is its own address (a message which contains a unique global address, a temporarily assigned global address, and a global address of a router indicating a location of a network element apparatus in global

network). Nakatsugawa fails to teach a generating section that generates a binding update message which contains an address of a different level router to which a network element apparatus is connected, a transmitting section that transmits a generated message to another network element apparatus which is a home agent, and a message contains a unique global address, a temporarily assigned global address, and a global address of a higher level router indicating a location of a network element apparatus in global network. Thubert teaches a generating section that generates a binding update message which contains an address of a different level router to which a network element apparatus is connected, a transmitting section that transmits a generated message to another network element apparatus which is a home agent, and Venkitaraman teaches a message contains a unique global address, a temporarily assigned global address, and a global address of a higher level router indicating a location of a network element apparatus in global network.

In the same field of endeavor, Thubert teaches in paragraph [0031], and in FIG. 1, a home agent registration resource 44 (FIG. 1) sends a bind update message to a home agent 18 specified by a stored home agent IP address, for each mobile router belonging to a corresponding subnet prefix (a generating section that generates a binding update message which contains an address of a different level router to which a network element apparatus is connected, a transmitting section that transmits a generated message to another network element apparatus which is a home agent). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Thubert with the teachings of Nakatsugawa since Thubert

provides a system that involves a routing device sending a binding message that includes the address of a routing device of a different type, allowing the system in the teachings of Nakatsugawa to support mobile routers and allow users to utilize mobile routers with wireless devices that cannot connect directly through a wireless network, and a person of ordinary skill in the art at the time of the invention would appreciate the advantages of wireless network supporting wireless routers with the emergence of Bluetooth and other short range wireless devices that cannot connect to cellular networks but can connect to cellular phones and notebook computers, and a person of ordinary skill in the art at the time of the invention would attempt to incorporate mobile routers of Thubert into the system of the teachings of Nakatsugawa and to allow these mobile routers to send binding updates as taught by Thubert as they move through wireless networks.

In the same field of endeavor, Venkitaraman teaches in paragraphs [0040], and in FIG. 1, FIG. 13, and FIG. 14, a CN will create an IP header with a care of address of a mobile router as a destination (which is both a temporarily assigned global address and a global address of a higher level router), and a mobile network node's home address in a route (a unique global address), and, in certain cases, a destination is a highest nested address, and a routing header includes intermediate nested addresses (global addresses of one or more higher level routers) along with a mobile network node's home address (FIG. 14) (a message contains a unique global address, a temporarily assigned global address, and a global address of a higher level router indicating a location of a network element apparatus in global network). It would have

been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Venkitaraman with the teachings of Thubert since Venkitaraman provides a system where a message contains addresses of one or more routers, and where one or more of these routers are on a wired network (higher level) and are different from a mobile router ("lower" level), and a person of ordinary skill in the art at the time of the invention would appreciate the advantage of a routing header that includes any intermediate nested addresses, since multiple nested addresses indicate to which packets should be directed to reach a particular mobile node (see Venkitaraman, paragraph [0040]), and can reduce packet processing time by routers since a router need only inspect the nested addresses and is not required to utilize a routing algorithm.

In regard to Claim 5, as discussed in the rejection of Claim 1, Nakatsugawa in view of Thubert and Venkitaraman teaches a unique home address, a temporarily assigned global address, a binding update message, header fields, a home address, a care-of-address, and an access router address field indicating a global address of a higher level router to which a network element apparatus is connected.

Nakatsugawa further teaches in column 4, lines 52-56, a home agent router and a correspondent node generate a bidding cache (information storing home address of a mobile node and CoA of notified mobile node and its validity) based on a notification (a receiving section and a recording section that records an entry containing addresses in a corresponding manner with a received message).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa in view of Thubert, Venkitaraman, and further in view of Perkins et al. ("IP Mobility Support", IETF RCF 2002, IBM, pages 16-20) and Narten et al. ("Neighbour Discovery for IP Version 6 (IPv6)", IETF RFC 2461, pages 29-30), hereafter referred to as Perkins and Narten, respectively.

In regard to Claim 2, as discussed in the rejection of Claim 1, Nakatsugawa in view of Thubert and Venkitaraman teaches an access router address that is the global address of a higher router. Nakatsugawa fails to teach a field indicating whether a global address of a router is contained in a message or not, a length field indicating a data length of a part, and an access router address field indicating a global address of a router. Perkins teaches a type field indicating whether an address of a router is contained in the message or not and an address field, and Narten teaches a length field indicating the length of a data part.

Perkins teaches in Pages 16 to 20, section 2.1.1., a Mobility Agent Advertisement Extension that contains a Type field and a Length field that indicates if the message contains zero or more Care-of Addresses in its Care-of Addresses field though the formula $(6 + 4 \cdot N)$, where N is the number of care-of addresses advertised (a type field indicating whether an address of a router is contained in the message or not). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Perkins with the invention of Nakatsugawa since Perkins explicitly teaches details of header fields outside of address fields that can be

implemented in the apparatus of Nakatsugawa, so that the apparatus of Nakatsugawa will have these fields to implement Mobile IP and operate in a Mobile IP environment.

Narten teaches in Pages 29-30, section 4.6.2., a Prefix Length indicating the number of leading bits in the Prefix that are valid (a length field indicating the length of a data part). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Narten with the invention of Nakatsugawa since Narten teaches explicitly teaches details of header fields outside of address fields that can be implemented in the apparatus of Nakatsugawa and provide information as to the length of information that a packet is carrying is the valid payload is variable, facilitating in fragmentation determination in packet received by the apparatus of Nakatsugawa.

In regard to Claim 3, as discussed in the rejection of Claim 1, Nakatsugawa in view of Thubert and Venkitaraman teaches a unique global address of a network element apparatus, a receiving section that receives a message from a higher level router to which a network element apparatus is connected, and a generating section that generates a binding update message. Nakatsugawa fails to teach an advertisement message in IPv6, a type field indicating whether an address of a router is contained in the message or not, and a length field indicating the length of a data part, and a receiving section that receives an advertisement message in IPv6 transmitted from a router to which a network apparatus is connected, and obtaining a global address of a router from an advertisement message received by a receiving section. As

discussed in the rejection of Claim 2, Perkins teaches a type field indicating whether an address of a router is contained in the message or not and an address field, and Narten teaches a length field indicating the length of a data part. Venkitaraman teaches a receiving section that receives an advertisement message in IPv6 transmitted from a router to which a network apparatus is connected, and obtaining a global address of a router from an advertisement message received by a receiving section. Narten further teaches an advertisement message in IPv6.

Venkitaraman teaches in paragraph [0049], and in FIG. 11, a step 1108 (FIG. 11), a router advertisement informs a mobile node of a home address of a mobile router (a receiving section that receives an advertisement message in IPv6 transmitted from a router to which a network apparatus is connected, and obtaining a global address of a router from an advertisement message received by a receiving section). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Venkitaraman with the teachings of Nakatsugawa since Venkitaraman provides a system in which a mobile node connects to a network though a mobile router, which can be incorporated into the teachings of Nakatsugawa to allow mobile nodes that are unable to connect on a network on their own to connect though a mobile router than can connect to a network, expanding the wireless mobile capabilities of Nakatsugawa to provide more flexible services to customers, and a person of ordinary skill in the art at the time of the invention would appreciate the advantages of allowing mobile nodes to acquire network access though other wireless devices, since many devices do not employ protocols that can connect to certain wireless networks, such as

Bluetooth devices that are unable to connect to cellular or WiFi networks to send data over these networks, and a person of ordinary skill in the art at the time of the invention could attempt to incorporate mobile routers into the system of Nakatsugawa so that Bluetooth devices and other similar short-range protocol devices can connect to larger networks that are implemented utilizing appropriate protocols.

Perkins teaches in Pages 16 to 20, section 2.1.1., a Mobility Agent Advertisement Extension that contains a Type field and a Length field that indicates if the message contains zero or more Care-of Addresses in its Care-of Addresses field though the formula $(6 + 4 \cdot N)$, where N is the number of care-of addresses advertised (a type field indicating whether an address of a router is contained in the message or not). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Perkins with the invention of Nakatsugawa since Perkins explicitly teaches details of header fields outside of address fields that can be implemented in the apparatus of Nakatsugawa, so that the apparatus of Nakatsugawa will have these fields to implement Mobile IP and operate in a Mobile IP environment.

Narten teaches in Pages 29-30, section 4.6.2., a Prefix Length indicating the number of leading bits in the Prefix that are valid (a length field indicating the length of a data part). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Narten with the invention of Nakatsugawa since Narten teaches explicitly teaches details of header fields outside of address fields that can be implemented in the apparatus of Nakatsugawa and provide information as to the length of information that a packet is carrying is the valid payload is variable,

facilitating in fragmentation determination in packet received by the apparatus of Nakatsugawa.

Narten teaches in Page 18, Neighbor Discovery for IPv6 that includes a Router Advertisement Message Format (an advertisement message in IPv6). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Narten with the invention of Nakatsugawa since Narten teaches message formats compatible with IPv6, and would allow the apparatus of Nakatsugawa to be compatible with IPv6 for operation in an IPv6 environment, and expanding the capabilities of the apparatus of Nakatsugawa to include operations involving IPv6 communications and providing services to customers using IPv6.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa in view of Thubert, Venkitaraman, and further in view of Ayerst et al. (Patent Number: 5,799,012), hereafter referred to as Ayerst.

In regard to Claim 4, as discussed in the rejection of Claim 1, Nakatsugawa teaches network element apparatus and transmitted message. Nakatsugawa fails to teach information related to reception or rejection of last transmitted message is contained in a reply of other network element in response to last transmitted message and next transmitted message contains information related to reception or rejection and information notifies other network element apparatus is able to take action to handle the message.

In the same field of endeavor, Ayerst teaches in column 24, lines 54-62, and in FIG. 6, Sheet 6 of 16, and in FIG. 8, Sheet 8 of 16, an ACK is sent indicating DUs (data units) were received with errors (information related to reception or rejection of last transmitted message is contained in a reply of other network element in response to last transmitted message).

Ayerst also teaches in column 25, lines 6-10, and in FIG. 6, Sheet 6 of 16, the two data units are re-transmitted with the transmission of 6 other data units, and, in column 12, lines 12-26, each data unit contains a 12 bit CRC for detecting errors and is assigned an ID number that is used in the ARQ process (next transmitted message contains information related to reception or rejection and information notifies other network element apparatus is able to take action to handle the message). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Ayerst with the invention of Nakatsugawa since Ayerst provides a method of selectively acknowledging and retransmitting protocol data units, which can be incorporated into the method of Nakatsugawa to replace data with errors in an efficient manner and provide a certain quality level of data communications to customers.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa in view of Thubert, Venkitaraman, and further in view of Pannell et al. (Patent No.: US 6,208,644 B1) and Inoue (Patent No.: US 6,925,087 B2), hereafter referred to as Pannell and Inoue, respectively.

In regard to Claim 6, Nakatsugawa fails to teach an access router address field in a message containing the global address of a router, updating entry sets in a case where the received message contains an address, the address field of an entry using this address, and setting, in a case where the received message does not contain an address of a router, an address field of an entry is to be invalid.

As discussed in the rejection of Claim 2, Nakatsugawa teaches an access router address field in a message containing the global address of a router.

In the same field of endeavor, Pannell teaches in column 11, lines 21-28, when an ACK packet, a microcomputer reads the SRC field and creates or updates a table entry in memory involving the incoming network source address SRC (updating entry sets in a case where the received message contains an address, the address field of an entry using this address). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Pannell with the invention of Nakatsugawa since Pannell provides an apparatus where table entries in a memory can be created and updated, and the apparatus can be implemented in the apparatus of Nakatsugawa to update the data hold unit in the apparatus of Nakatsugawa.

In the same field of endeavor, Inoue teaches column 7, line 59 to column 8, line 3, a received message is analyzed and, if a received message is not an address information notification message, but a neighbor cache entry deletion message, a message processing unit invalidates an entry corresponding to that mobile terminal device (setting, in a case where the received message does not contain an address of a router, an address field of an entry is to be invalid). It would have been obvious to one

of ordinary skill in the art at the time of the invention to combine the invention of Inoue with the invention of Nakatsugawa since Inoue provides an apparatus that can invalidate entries in a memory, and the apparatus can be implemented in the apparatus of Nakatsugawa to invalidate entries of the data hold unit in the apparatus of Nakatsugawa so that expired entries are no longer stored and occupying memory capacity.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa in view of Venkitaraman and Gudat et al. (Patent No.: US 6,771,609 B1), hereafter referred to as Gudat.

In regard to Claim 10, Nakatsugawa teaches in column 5, line 48 to column 6, line 3, and in FIG. 5 and FIG. 6, a mobile node (home address=A) normally connected to a home link network 1 (FIG. 5) moves to network 3 (FIG. 5), and then a mobile node moves to a network 4 (FIG. 5), and a mobile node generates an address C as a new CoA in a network 4, and a mobile node then transmits a binding update to a home agent router and a correspondent node CN2 as shown by "BU" in FIG. 5 to notify them of a CoA (=address C) (a mobile node which a unique global address is assigned in a global network, performs packet communication with a corresponding node via a home agent, and makes a roaming connection to another network contained in a global network, a mobile node a mobile node transmits a binding update message to a home agent).

Nakatsugawa teaches in column 15, lines 7-14, and in FIG. 25, Sheet 20 of 34, a IPv6 header with a home address option, a CoA (Care of Address) option, and a

destination address, where, in column 15, lines 40-52, a mobile node adapted router judges that the destination address of the IPv6 header is its own address (a message including a global address of a mobile node, a temporarily assigned address of a mobile node, and a global address distributed from a router, in association with each other).

Nakatsugawa teaches in column 4, lines 46-56, and column 5, lines 53-57, a home agent router receive a binding update and generates a binding cache (information storing home address of mobile node and CoA of notified mobile node and its validity ect.) based on this notification (a home agent section that receives a binding update message and holds association of addresses as an entry).

Nakatsugawa teaches in column 6, lines 23-27, and in FIG. 6, in packet P6 (FIG. 6) an encapsulation contains a CoA (=address C) of a mobile node in its header, and it encapsulates a packet with a home address (=A) of a mobile node (a temporarily assigned global address of a mobile node and a unique global address are arranged in that order).

In the same field of endeavor, Venkitaraman teaches in paragraphs [0023] and [0024], and in FIG. 1, a mobile network node 116 (FIG. 1) (mobile node) connected to a mobile router 112 (FIG. 1) (lower level network apparatus), which is connected to a site router 118 (FIG. 1) (higher level network apparatus) (a mobile node or mobile router connected to a higher level router, a mobile node connected to a lower level network apparatus).

Venkitaraman teaches in paragraph [0049], and in FIG. 11, a step 1108 (FIG. 11), a router advertisement informs a mobile node of a home address of a mobile router

(a mobile router comprises a section that distributes a global address of a mobile router to a mobile node connected to a mobile router, a mobile node which is connected to a mobile router).

Venkitaraman teaches in paragraphs [0029], [0031], and [0032], storing binding information in memory, defining a "binding cache" and, when desiring to send packets to a mobile network node, performing a recursive lookup to determine first that packets should be directed to a mobile network and second, to identify a care of address to which packets should be directed to reach a mobile network, and where a binding cache may include nested entries for certain mobile nodes, in which case a recursive lookup is performed to determine one or more nested addresses for reaching such nodes, and constructing mobile packet headers for packets directed to certain mobile nodes (a section that, when a packet is transmitted to a mobile node, searches an association of addresses from an entry, and constructs a routing header). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Venkitaraman with the teachings of Nakatsugawa since Venkitaraman provides a system in which a mobile node connects to a network though a mobile router, which can be incorporated into the teachings of Nakatsugawa to allow mobile nodes that are unable to connect on a network on their own to connect though a mobile router than can connect to a network, expanding the wireless mobile capabilities of Nakatsugawa to provide more flexible services to customers, and a person of ordinary skill in the art at the time of the invention would appreciate the advantages of allowing mobile nodes to acquire network access though other wireless devices, since many devices do not

employ protocols that can connect to certain wireless networks, such as Bluetooth devices that are unable to connect to cellular or WiFi networks to send data over these networks, and a person of ordinary skill in the art at the time of the invention could attempt to incorporate mobile routers into the system of Nakatsugawa so that Bluetooth devices and other similar short-range protocol devices can connect to larger networks that are implemented utilizing appropriate protocols.

In the same field of endeavor, Gudat teaches in column 18, lines 28-36, checking a binding cache, then a packet is encapsulated using a service laptops care-of address as a destination address, and then a packet is encapsulated a second time using a mobile router's care-of address as a destination address, and a packet is then sent over a network (an address of a router is arranged at a head, and a temporarily assigned global address of a mobile node arranged in that order, and forwards a packet to a temporarily assigned global address of a mobile router, which is the address at a head). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Gudat with the teachings of Nakatsugawa since Gudat provides a method of sending packet to a mobile device that is connected to a mobile router, which can be incorporated into the teachings of Nakatsugawa to allow mobile nodes that are unable to connect on a network on their own to connect though a mobile router than can connect to a network, expanding the wireless mobile capabilities of Nakatsugawa to provide more flexible services to customers, and a person of ordinary skill in the art at the time of the invention would appreciate the advantages of allowing mobile nodes to acquire network access though other wireless devices, since many

devices do not employ protocols that can connect to certain wireless networks, such as Bluetooth devices that are unable to connect to cellular or WiFi networks to send data over these networks, and a person of ordinary skill in the art at the time of the invention could attempt to incorporate mobile routers into the system of Nakatsugawa so that Bluetooth devices and other similar short-range protocol devices can connect to larger networks that are implemented utilizing appropriate protocols.

In regard to Claim 11, as discussed in the rejection of Claim 10, Nakatsugawa teaches a binding message. Nakatsugawa fails to teach a mobile router transmits an update message to a mobile node. Venkitaraman teaches these limitations.

Venkitaraman teaches in paragraph [0049], and in FIG. 11, a step 1108 (FIG. 11), a router advertisement informs a mobile node of a home address of a mobile router (a mobile router transmits an update message to a mobile node). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Venkitaraman with the teachings of Nakatsugawa since Venkitaraman provides a system in which a mobile node connects to a network though a mobile router, which can be incorporated into the teachings of Nakatsugawa to allow mobile nodes that are unable to connect on a network on their own to connect though a mobile router than can connect to a network, expanding the wireless mobile capabilities of Nakatsugawa to provide more flexible services to customers, and a person of ordinary skill in the art at the time of the invention would appreciate the advantages of allowing mobile nodes to acquire network access though other wireless devices, since many

devices do not employ protocols that can connect to certain wireless networks, such as Bluetooth devices that are unable to connect to cellular or WiFi networks to send data over these networks, and a person of ordinary skill in the art at the time of the invention could attempt to incorporate mobile routers into the system of Nakatsugawa so that Bluetooth devices and other similar short-range protocol devices can connect to larger networks that are implemented utilizing appropriate protocols.

Allowable Subject Matter

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

I. Arguments for Objection to the Information Disclosure Statement filed 11/01/2007.

Applicant's arguments, see page 9, filed 04/15/2008, with respect to the Information Disclosure Statement filed 11/01/2007 have been fully considered and are persuasive. The objection of the Information Disclosure Statement filed 11/01/2007 has been withdrawn.

II. Arguments for Objection to the Information Disclosure Statement filed 04/14/2005.

Applicant's arguments filed 04/15/2008 have been fully considered but they are not persuasive. Examiner makes the following notes: the cited references at issue are not of record in the application file. Examiner cannot consider these references. If applicant has copies of these references, applicant is encouraged to resubmit them for Examiner's consideration.

III. Arguments for Claim Rejections under 35 USC § 103.

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- **Baum et al. (Patent Number: 5,166,674)** teaches in the Abstract, a switch reverses the source and destination fields and returns a packet to a sender.
- **Schwaderer et al. (Patent No.: US 7,180,887 B1)** teaches in column 18, lines 14-21, a recursive function for building a search table from a table of IP address entries.
- **Nakatsugawa et al. (Pub. No.: US 2002/0186679 A1)** teaches in paragraph [0015], the home agent which has received the binding update

generates a binding cache for storing the home address, the CoA, and the registration lifetime of the node.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA SMITH whose telephone number is (571)270-1826. The examiner can normally be reached on Monday-Thursday 9:30am-7pm, Alternating Fridays 9:30am-6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2619

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua Smith
Patent Examiner
17 July 2008

/Hassan Kizou/
Supervisory Patent Examiner, Art Unit 2619